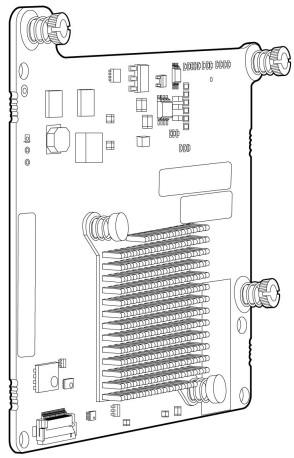
Overview

The HP Flex-10 10Gb 2-port 552M is a Flex-10 10 Gigabit Ethernet (10GbE) mezzanine card for BL-c Gen8 servers that utilizes the Emulex BE3 controller. The HP 552M adapter supports Virtual Connect Flex-10, which allows each 10Gb port to be divided into four physical NICs to optimize bandwidth management for virtualized servers. The HP 552M optimizes network and storage traffic with hardware acceleration and offloads for stateless TCP/IP and TCP Offload Engine (TOE).



HP Flex-10 10Gb 2-port 552M Adapter

Models

HP Flex-10 10Gb 2-port 552M Adapter	674764-B21

NOTE: The HP 552M on each server blade connects to a 10Gb interconnect in bays 3-8 (HP BladeSystem c7000 Enclosure) or bays 2-4 (HP BladeSystem c3000 Enclosure).

NOTE: The HP 552M adapter requires a minimum of 2 GB of server memory.

NOTE: The HP 552M adapter supports linking at 1000Mbps or 10000Mbps when not connected to a Flex-10 device. The HP 552M adapter will only support 1000Mbps when connected to a 1Gb Ethernet interconnect.

Kit Contents

- HP Flex-10 10Gb 2-port 552M Adapter
- Quick install card
- Product warranty statement
- Drivers, user guide, and utilities via: http://www.hp.com

Compatibility

HP ProLiant Server Support	HP ProLiant BL460c Gen8

Supported Interconnect Modules

- HP Virtual Connect Flex-10 Ethernet Module
- HP 1/10Gb Virtual Connect Ethernet Module
- HP 1/10Gb-F Virtual Connect Ethernet Module HP
- HP 6120XG Blade Switch
- HP 6120G/XG Blade Switch
- HP 1:10Gb Ethernet BL-c Switch
- Cisco Catalyst 3120G Blade Switch for HP
- Cisco Catalyst 3120X Blade Switch for HP
- Cisco Catalyst 3020 Blade Switch
- Cisco Fabric Extender B22HP for HP
- HP GbE2c Layer 2/3 Ethernet Blade Switch
- HP 10GbE Pass-Thru Module
- HP 1GbE Pass Thru Module

NOTE: Except for the HP Virtual Connect Flex-10 Ethernet Module, the 6120XG and the HP 10GbE Pass-Thru Module, all other supported interconnects are limited to 1Gb per port connection.

Standard Features

Performance

Product Features

- Industry-leading throughput and latency performance
- Supports Gen8 c-Class ProLiant BladeSystem servers
- Type A Adapter Dual 10Gb ports provide up to 40Gb full duplex per adapter
- Hardware acceleration and offloads for stateless TCP/IP and TCP Offload Engine (TOE)
- 802.1p, 802.1q, 802.1qau 802.3u, 802.3ad, 802.3ae, 802.3ap (10GBase-KX4), 802.3x and 802.3z
- Jumbo frames support
- Supports HP's Flex-10 technology that allows setting bandwidth from 100Mb to 10Gb in 100Mb increments on up to four physical function NICs or Flex NICs per port when combined with the 10Gb Flex-10 Virtual Connect module. Each FlexNIC is recognized by the server as a PCI-e physical function.
- Supports receive-side scaling (RSS) for the efficient distribution of network receive processing across multiple CPUs in multiprocessor systems.
- Includes 128 MB of onboard memory.
- Supports the Preboot eXecution Environment (PXE)

Dual-port 10 Gigabit Ethernet Throughput (theoretical bandwidth)	The 20 Gbps full duplex Ethernet transfer rate per port (40 Gbps aggregate full duplex) delivers outstanding network performance that improves response time and removes bottlenecks.
HP Virtual Connect Flex-10 10Gb Ethernet Module for the c-Class BladeSystem	Evolve 10Gb at your own speed! When paired with the HP Virtual Connect Flex-10 10Gb Ethernet Modules, take advantage of four Flex NICs, which are PCI Physical Function devices that are OS/Hypervisor independent. Server ROM recognizes them as individual NICs. Speeds can be set per NIC from 100Mb to 10Gbs in 100Mb increments. Three fold increase in number of network connections per port and up to four physical function NICs per port. Ideal for virtualized server environment, especially for dedicated bandwidth application like virtual machine migration from one physical server to another physical server.
Jumbo Frames	The HP 552M adapter support for jumbo frames (also known as extended frames) permits up to a 9K byte maximum transmission unit (MTU), which is over five times the size of standard 1500-byte Ethernet frame. Jumbo frames can help achieve higher throughput and better CPU utilization. Jumbo frames are particularly useful for database transfers and tape backups.
802.1p QoS Tagging	IEEE quality of service (QoS) 802.1p tagging allows the adapter to mark or tag frames with a priority level across a QoS-aware network for improved traffic flow.
802.1Q VLANs	IEEE 802.1Q virtual local area network (VLAN) protocol allows each physical port or FlexNIC of the HP 552M adapter to be assigned to a VLAN for added network segmentation and enhanced security and performance. VLANs increase security by isolating traffic between users. Limiting the broadcast traffic to the same VLAN domain also improves performance.

Standard Features

TCP/IP Stateless Offloading	For overall improved system response, the HP 552M adapter supports standard TCP/IP stateless offloading techniques including: • TCP/IP checksum offload (TCO) moves the TCP and IP checksum offloading from the CPU to the network adapter. • Large send offload (LSO), also known as TCP segmentation offload (TSO), allows TCP segmentation to be handled by the adapter rather than the CPU.
TOE	TCP/IP Offload Engine (TOE) moves the processing of data in the TCP protocol stack from the server CPU to the network card, freeing CPU cycles for other duties.
RDMA	Not Supported
Warranty	HP branded hardware options qualified for BladeSystem c-Class and p-Class servers are covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. The HP branded hardware option diagnostic support and repair is available for one year from date of purchase, or the length of the server they are attached to, whichever is greater. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Service and Support

HP Technology Services

HP Technology Services offers you consultants and support experts to solve your most complex infrastructure problems. We help keep your business running, boost availability and avoid downtime.

Protect your business beyond warranty with HP Care Pack Services

When you buy HP Options, it's also a good time to think about what level of service you may need. HP Care Pack services provide total care and support expertise with committed response choices designed to meet your IT and business need.

HP Foundation Care services deliver scalable support-packages for HP industry-standard servers and software. You can choose the type and level of service that is most suitable for your business needs. New to this portfolio is HP Collaborative Support. If you are running business critical environments, HP offers Proactive Care or Critical Advantage. These services help you deliver high levels of application availability through proactive service management and advanced technical response.

Here is the support service recommendation from the Foundation Care and Proactive Care portfolio. For customized support service solution, HP can work with you to tailor a service solution for your unique support requirements using broader services portfolio of Foundation Care and Proactive Care.

Recommended Services

Recommended HP Care Pack Services for optimal satisfaction with your HP product

3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service

Provides you with rapid remote support and if required an HP authorized representative who will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged.

http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EEE.pdf

OR

3-Year HP 24x7 4 hour Response, HP Collaborative Support

Offers customers a single point of contact for server problem diagnosis, hardware problem resolution, and basic software problem diagnosis, fault isolation, and resolution if available to HP. If the problem is with HP HW, the representative will arrive on site any time and day of the year to begin hardware maintenance service within 4 hours of the service request being logged. In case, the issue is with HP or supported third-party software product and cannot be resolved by applying known fixes, HP will contact the third-party vendor and create a problem incident on your behalf.

HP ProLiant Server Hardware Installation

Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner.

http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN.pdf

Service and Support

Related Services	Related HP Care Pack Services to enhance your HP product experience 3-Year HP 24x7 4 hour Response, Proactive Care or Critical Advantage Helps optimize your systems and delivers high levels of application availability through proactive service management and advanced technical response. A skilled Technical Manager will own your query or issue end to end until resolved, delivering a single point of contact for you. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-2140ENW.pdf OR 3-Year HP 6-hour Onsite Call-to-Repair, HP Collaborative Support Offers customers a single point of contact for server problem diagnosis, hardware problem resolution to return the hardware in operating condition within 6 hours of the initial service request to the HP Global Solution Center, and basic software problem diagnosis, fault isolation, and resolution if available to HP. In case, the issue is with HP or supported third-party software product and cannot be resolved by applying known fixes, HP will contact the third-party vendor and create a problem incident on your behalf. HP Proactive Select Service Provides a flexible way to purchase HP best-in-class consultancy and technical services. You can buy Proactive Select Service Credits when you purchase your hardware and then use the credits over the next 12 months. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-3842ENN.pdf
Insight Remote Support	Provides 24 X 7 remote monitoring, proactive notifications, and problem resolution. Learn more http://www.hp.com/go/insightremotesupport
HP Support Center	Personalized online support portal with access to information, tools and experts to support HP business products. Submit support cases online, chat with HP experts, access support resources or collaborate with peers. Learn more http://www.hp.com/go/hpsc HP's Support Center Mobile App* allows you to resolve issues yourself or quickly connect to an agent for live support. Now, you can get access to personalized IT support anywhere, anytime. HP Insight Remote Support and HP Support Center are available at no additional cost with a HP warranty, HP Care Pack or HP contractual support agreement. *HP' Support Center Mobile App is subject to local availability.

Service and Support

Parts and materials	HP will provide HP-supported replacement parts and materials necessary to maintain the covered hardware product in operating condition, including parts and materials for available and recommended engineering improvements. Supplies and consumable parts will not be provided as part of this service; standard warranty terms and conditions apply. Parts and components that have exceeded their maximum supported lifetime and/or the maximum usage limitations as set forth in the manufacturer's operating manual or the technical product data sheet will not be provided, repaired or replaced as part of this service.
Warranty / Service Coverage	For ProLiant servers and storage systems, this service covers HP-branded hardware options qualified for the server, purchased at the same time or afterward, internal to the enclosure, as well as external monitors up to 22" and tower UPS products; these items will be covered at the same service level and for the same coverage period as the server unless the maximum supported lifetime and/or the maximum usage limitation has been exceeded. Coverage of the UPS battery is not included; standard warranty terms and conditions apply. The defective media retention service feature option applies only to Disk or eligible SSD/Flash Drives replaced by HP due to malfunction. It does not apply to any exchange of Disk or SSD/Flash Drives that have not failed. SSD/Flash Drives that are specified by HP as consumable parts and/or that have exceeded maximum supported lifetime and/or the maximum usage limit as set forth in the manufacturer's operating manual or the technical data sheet are not eligible for the defective media retention service feature option.
For more information	To learn more on services for HP ESSN Options, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: http://www.hp.com/services/proliant or www.hp.com/services/bladesystem

Related Options

Additional c-Class BladeSystem Adapters	FlexibleLOM Adapters	
	HP FlexFabric 10Gb 2-port 554FLB Adapter	647586-B21
	HP Flex-10 10Gb 2-port 530FLB Adapter	656590-B21
	Mezzanine Adapters	
	HP Flex-10 10Gb 2-port 530M Adapter	631884-B21
	HP FlexFabric 10Gb 2-port 554M Adapter	647590-B21
HP 10Gb interconnects	HP Virtual Connect Flex-10 10Gb Ethernet Module for c-Class BladeSystem	455880-B21
	HP 6120XG Blade Switch	516733-B21
	HP 10GbE Ethernet Pass-Thru Module for c-Class BladeSystem	538113-B21

Technical Specifications

General Specifications	Network processor	Emulex BE3	
	Data rate	Two ports, each at 20 Gbps full duplex; 40 Gbps aggregate full duplex theoretical bandwidth.	
	Onboard memory	128MB	
	Bus type	PCI Express v2.0 (Gen 2) x8	
	Form factor	Type A Mezzanine Card	
	IEEE Compliance	802.1p, 802.1q, 802.1qau, 802.3ad, 802.3ae, 802.3ap (10GBase-KX4), and, 802.3x	
Power and Environmental Specifications	Operating	Temperature	0°C to 55°C / 32°F to 131°F
		Humidity	10% to 90% non-condensing
	Power requirement	8.6W idle and 10W maximum	
	Emissions classification	FCC Class A	
	Agency approvals	USA	FCC (CFR 47 part 15) and UL 60950
		Canada	ICES-003 and CSA60950
		Japan	VCCI
		Korea	MIC (RRL), EMC Registration
		Australia	ACA, AS/NZS3548/EN55022:1998, EN55024:1998
		European Union	EN55022:1998 (CISPR 22), EN55024:1998, and IEC60950:1999 (EN60950:2000)
	RoHS Compliance	6 of 6	
	Safety	UL Mark (USA and Canada)	
		CE Mark	
		EN 60590	

Operating System Support

Microsoft:
Microsoft Windows Server 2008 SP2, R2 (x86 and x64)
Microsoft Windows Hyper-V, R2 SP1

Linux:
RHEL 5, 6, 7
SLES 10, 11

Solaris:
Solaris 10 (x86 and x64)

Virtualization:
VMware ESX 4, ESX 5.0

NOTE: For more operating system support & certification information, please visit: http://h10018.www1.hp.com/wwsolutions/index.html.

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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